





PRAISE FOR

---

# OUR INNER APE

A *New York Times* Notable Book

“A remarkable journey of discovery to the heart of a profound question: What can we learn about the evolution of our own cultures by studying the behavior of our primate cousins? A deftly written, deeply reflective work.”

—*The New York Times Book Review*

“Absorbing and entertaining...explaining to the interested layperson more clearly than any other book the sound science that lies in the middle of the sometimes shrill debate about the origins of human nature.”

—*The Washington Post*

“De Waal is an original thinker and writes with such a light hand that the reader can take a stimulating ride through this imaginative philosophical discourse.”

—*The Boston Globe*

“For those ready for some self-scrutiny, and a less biased view of culture and learning in our fellow creatures, this book will be a revelation.”

—*Scientific American*

“Simply brilliant. A must-read for anyone interested in the questions of what it means to be human and what it means to be an ape. Not only is the language accessible to everyone, it is a wonderful, thought-provoking read.”

—*The Glasgow Herald*

“If you care about the great apes, this book, with its superb photographs and vivid text, is a must.”

—Jane Goodall

“An entertaining and provocative read.”

—*New Scientist*

“Frans de Waal is uniquely placed to write a book on the duality of human nature and on its biological origins in other primate species. No other book has attempted to cover this ground. Few topics are as timely to the understanding of the human mind and behavior.”

—Antonio R. Damasio, author of *Descartes' Error*

“One of the most important disciplines that is generating new knowledge about human nature is primatology. Frans de Waal is the best-qualified scientist not just to describe the results of this research, but to draw out a balanced understanding of what it implies about contemporary politics and social policy.”

—Francis Fukuyama, author of *The End of History and the Last Man*

“Even more enlightening than Machiavelli’s *The Prince*, this book describes power takeovers and social organizations in a chimpanzee colony.... I’ll never look at academic or corporate politics the same way.”

---

—Jim Collins, *It*

“The best book ever written on the social life of apes in captivity...The author has that special empathetic insight into the mind of the chimpanzee which is shared by few but can somehow be recognized by many.”

—William McGrew, *Human Ethology Newsletter*



*Chimpanzee Politics* (1982)

*Peacemaking Among Primates* (1989)

*Good Natured* (1996)

*Bonobo* (1997)

*The Ape and the Sushi Master* (2001)

*My Family Album* (2003)



# Our Inner Ape

---

A LEADING PRIMATOLOGIST EXPLAINS  
WHY WE ARE WHO WE ARE



## Frans de Waal

Photographs by the author

RIVERHEAD BOOKS

New York





**THE BERKLEY PUBLISHING GROUP**

**Published by the Penguin Group**

---

**Penguin Group (USA) Inc.**

**375 Hudson Street, New York, New York 10014, USA**

Penguin Group (Canada), 90 Eglinton Avenue East, Suite 700, Toronto, Ontario M4P 2Y3, Canada (a division of Pearson Penguin Canada Inc.)

Penguin Books Ltd., 80 Strand, London WC2R 0RL, England

Penguin Group Ireland, 25 St. Stephen's Green, Dublin 2, Ireland (a division of Penguin Books Ltd.)

Penguin Group (Australia), 250 Camberwell Road, Camberwell, Victoria 3124, Australia (a division of Pearson Australia Group Pty Ltd.)

Penguin Books India Pvt. Ltd., 11 Community Centre, Panchsheel Park, New Delhi—110 017, India Penguin Group (NZ), Cnr.

Airborne and Rosedale Roads, Albany, Auckland 1310, New Zealand (a division of Pearson New Zealand Ltd.)

Penguin Books (South Africa) (Pty.) Ltd., 24 Sturdee Avenue, Rosebank, Johannesburg 2196, South Africa

Penguin Books Ltd., Registered Offices: 80 Strand, London WC2R 0RL, England

While the author has made every effort to provide accurate telephone numbers and Internet addresses at the time of publication, neither the publisher nor the author assumes any responsibility for errors, or for changes that occur after publication. Further, publisher does not have any control over and does not assume any responsibility for author or third-party websites or their content.

Copyright © 2005 by Frans de Waal

Photographs courtesy of Frans de Waal

Cover design by Nellys Li

Cover photographs © 2005 Joshua Sheldon

All rights reserved.

No part of this book may be reproduced, scanned, or distributed in any printed or electronic form without permission. Please do not participate in or encourage piracy of copyrighted materials in violation of the author's rights. Purchase only authorized editions.

RIVERHEAD is a registered trademark of Penguin Group (USA) Inc.

The RIVERHEAD logo is a trademark belonging to Penguin Group (USA) Inc.

ISBN: 978-1-1012-1738-2

The Library of Congress has catalogued the Riverhead hardcover edition as follows:

Waal, F. B. M. de (Frans B. M.), date.

Our inner ape : a leading primatologist explains why we are who we are / Frans de Waal; with photographs by the author.

p. cm.

1. Chimpanzees—Behavior. 2. Bonobo—Behavior. 3. Human behavior. 4. Psychology, Comparative. I. Title

QL737.P96W3214 2005 2005042768



*For Cattie, my love*

---



# Contents

---

*[Acknowledgments](#)*

**[ONE Apes in the Family](#)**

**[TWO Power](#)**

**[THREE Sex](#)**

**[FOUR Violence](#)**

**[FIVE Kindness](#)**

**[SIX The Bipolar Ape](#)**

*[Sources](#)*

*[Index](#)*



# Acknowledgments

---

This book owes so much to so many primates, human and nonhuman, that it's impossible to thank them all. The central idea was born from a discussion with Doug Abrams. At the time, I was thinking of applying my lifelong primate expertise to human behavior, and Doug felt that bonobos deserved far more attention than they had received thus far. The two ideas combined led to a book that directly compares human, chimpanzee, and bonobo behavior. Much more than my previous books, *Our Inner Ape* addresses our species' place in nature.

I appreciate feedback on my writing from Riverhead editor Jake Morrissey as well as Doug Abrams, Wendy Carlton, and my wife, Catherine Marin. I thank my agent, Michelle Tessler, for getting the book into such good hands.

Early in my career, in the Netherlands, I enjoyed the support of my adviser, Jan van Hooff, and the director of the Arnhem Zoo, Anton van Hooff, Jan's brother. I am grateful to Robert Goy for pulling me to this side of the Atlantic. In the United States, so many collaborators, technicians, and students worked with me that I won't mention names, but I owe all of them for their help with my studies and for opening fresh lines of inquiry. Finally, I thank Alexandre Arribas, Marietta Dindo, Michael Hammond, Milton Harris, Ernst Mayr, Toshisada Nishida, and Amy Parish for various forms of assistance, and Catherine for her love and support.





# Our Inner Ape

---



---

## Apes in the Family

One can take the ape out of the jungle, but not the jungle out of the ape.

This also applies to us, bipedal apes. Ever since our ancestors swung from tree to tree, life in small groups has been an obsession of ours. We can't get enough of politicians thumping their chests on television, soap opera stars who swing from tryst to tryst, and reality shows about who's in and who's out. It would be easy to make fun of all this primate behavior if not for the fact that our fellow simians take the pursuit of power and sex just as seriously as we do.

We share more with them than power and sex, though. Fellow-feeling and empathy are equally important, but they're rarely mentioned as part of our biological heritage. We would much rather blame nature for what we don't like in ourselves than credit it for what we do like. As Katharine Hepburn famously put it in *The African Queen*, "Nature, Mr. Allnut, is what we are put in this world to rise above."

This opinion is still very much with us. Of the millions of pages written over the centuries about human nature, none are as bleak as those of the last three decades—and none as wrong. We hear that we have selfish genes, that human goodness is a sham, and that we act morally only to impress others. But if all that people care about is their own good, why does a day-old baby cry when it hears another baby cry? This is how empathy starts. Not very sophisticated perhaps, but we can be sure that a newborn doesn't try to impress. We are born with impulses that draw us to others and that later in life make us care about them.

The old age of these impulses is evident from the behavior of our primate relatives. Truly remarkable is the bonobo, a little-known ape that is as close to us genetically as the chimpanzee. When a bonobo named Kuni saw a starling hit the glass of her enclosure at the Twycross Zoo in Great Britain, she went to comfort it. Picking up the stunned bird, Kuni gently set it on its feet. When it failed to move, she threw it a little, but the bird just fluttered. With the starling in hand, Kuni then climbed to the top of the tallest tree, wrapping her legs around the trunk so that she had both hands free to hold the bird. She carefully unfolded its wings and spread them wide, holding one wing between the fingers of each hand, before sending the bird like a little toy airplane out toward the barrier of her enclosure. But the bird fell short of freedom and landed on the bank of the moat. Kuni climbed down and stood watch over the starling for a long time, protecting it against a curious juvenile. By the end of the day, the recovered bird had flown off safely.

The way Kuni handled this bird was unlike anything she would have done to aid another ape. Instead of following some hardwired pattern of behavior, she tailored her assistance to the specific

situation of an animal totally different from herself. The birds passing by her enclosure must have given her an idea of what help was needed. This kind of empathy is almost unheard of in animals since it rests on the ability to imagine the circumstances of another. Adam Smith, the pioneering economist, must have had actions like Kuni's in mind (though not performed by an ape) when, more than two centuries ago, he offered us the most enduring definition of empathy as "changing places in fancy with the sufferer."

The possibility that empathy is part of our primate heritage ought to make us happy, but we're not in the habit of embracing our nature. When people commit genocide, we call them "animals." But when they give to the poor, we praise them for being "humane." We like to claim the latter behavior for ourselves. It wasn't until an ape saved a member of our own species that there was a public awakening to the possibility of nonhuman humaneness. This happened on August 16, 1996, when an eight-year-old female gorilla named Binti Jua helped a three-year-old boy who had fallen eighteen feet into the primate exhibit at Chicago's Brookfield Zoo. Reacting immediately, Binti scooped up the boy and carried him to safety. She sat down on a log in a stream, cradling the boy in her lap, giving him a few gentle back pats before taking him to the waiting zoo staff. This simple act of sympathy, captured on video and shown around the world, touched many hearts, and Binti was hailed as a heroine. It was the first time in U.S. history that an ape figured in the speeches of leading politicians, who held her up as a model of compassion.

## THE HUMAN JANUS HEAD

That Binti's behavior caused such surprise among humans says a lot about the way animals are depicted in the media. She really did nothing unusual, or at least nothing an ape wouldn't do for any juvenile of her own species. While recent nature documentaries focus on ferocious beasts (or the macho men who wrestle them to the ground), I think it's vital to convey the true breadth and depth of our connection with nature. This book explores the fascinating and frightening parallels between primate behavior and our own, with equal regard for the good, the bad, and the ugly.

We are blessed with two close primate relatives to study, and they are as different as night and day. One is a gruff-looking, ambitious character with anger-management issues. The other is an egalitarian proponent of a free-spirited lifestyle. Everyone has heard of the chimpanzee, known to science since the seventeenth century. Its hierarchical and murderous behavior has inspired the common view of humans as "killer apes." It's our biological destiny, some scientists say, to grab power by vanquishing others and to wage war into perpetuity. I have witnessed enough bloodshed among chimpanzees to agree that they have a violent streak. But we shouldn't ignore our other close relative, the bonobo, discovered only last century. Bonobos are a happy-go-lucky bunch with healthy sexual appetites. Peaceful by nature, they belie the notion that ours is a purely bloodthirsty lineage.

It is empathy that allows bonobos to understand each other's needs and desires and to help achieve them. When the two-year-old daughter of a bonobo named Linda whimpered at her mother with pouted lips, it meant that she wanted to nurse. But this infant had been in the San Diego Zoo's nursery and was returned to the group long after Linda's milk had dried up. The mother understood, though, and went to the fountain to suck her mouth full of water. She then sat in front of her daughter and puckered her lips so that the infant could drink from them. Linda repeated her trip to the fountain

three times until her daughter was satisfied.

---

We adore such behavior—which is itself a case of empathy. But the same capacity to understand others also makes it possible to hurt them deliberately. Both sympathy and cruelty rely on the ability to imagine how one's own behavior affects others. Small-brained animals, such as sharks, certainly can hurt others, but they do so without the slightest idea of what others may feel. The brains of apes, on the other hand, are one-third the size of ours, making them sufficiently complex for cruelty. Like boys throwing rocks at ducks in a pond, apes sometimes inflict pain for fun. In one game, juvenile lab chimpanzees enticed chickens behind a fence with bread crumbs. Each time the gullible chickens approached, the chimps hit them with a stick or poked them with a sharp piece of wire. This Tantalus game, which the chickens were stupid enough to play along with (although we can be sure it was no game to them), was invented by the chimps to fight boredom. They refined it to the point that one ape would be the baiter, another the hit man.

Apes are so like us that they're known as "anthropoids," from the Latin for "humanlike." To have two close relations with strikingly different societies is extraordinarily instructive. The power-hungry and brutal chimp contrasts with the peace-loving and erotic bonobo—a kind of Dr. Jekyll and Mr. Hyde. Our own nature is an uneasy marriage of the two. Our dark side is painfully obvious: An estimated 160 million people in the twentieth century alone lost their lives to war, genocide, and political oppression—all due to the human capacity for brutality. Even more chilling than such incomprehensible numbers are more personal expressions of human cruelty, such as the appalling incident in a small Texas town in 1998 in which three white men offered a forty-nine-year-old black man a ride. Instead of taking him home, they drove him to a deserted spot and beat him, then tied him to their truck and dragged him several miles along an asphalt road, tearing off his head and right arm.

We are capable of such savagery despite, or perhaps precisely *because* of, our ability to imagine what others feel. On the other hand, when that same ability is combined with a positive attitude, it prompts us to send food to starving people, make valiant efforts to rescue complete strangers (such as during earthquakes and fires), cry when someone tells a sad story, or join a search party when a neighbor's child is missing. With both cruel and compassionate sides, we stand in the world like a Janus head, our two faces looking in opposite directions. This can confuse us to the point that we sometimes oversimplify who we are. We either claim to be the "crown of creation" or depict ourselves as the only true villains.

Why not accept that we are both? These two aspects of our species correspond to those of our closest living relatives. The chimpanzee demonstrates the violent side of human nature so well that few scientists write about any other side at all. But we are also intensely social creatures who rely on one another and actually need interaction with other people to lead sane and happy lives. Next to death, solitary confinement is our most extreme punishment. Our bodies and minds are not designed for lonely lives. We become hopelessly depressed in the absence of human company, and our health deteriorates. In one recent medical study, healthy volunteers exposed to cold and flu viruses got sick more easily if they had fewer friends and family around them.

This need for connection is naturally understood by women. In mammals, parental care cannot be separated from lactation. During the 180 million years of mammalian evolution, females who responded to their offspring's needs outreproduced those who were cold and distant. Having descended from a long line of mothers who nursed, fed, cleaned, carried, comforted, and defended

their young, we should not be surprised by gender differences in human empathy. They appear well before socialization: The first sign of empathy—crying when another baby cries—is already more typical in girl babies than boy babies. And later in life empathy remains more developed in females than in males. This is not to say that men lack empathy or don't need to connect with others, but they seek it more from women than from other men. A long-term relationship with a woman, such as marriage, is the most effective way for a man to add years to his life. The flip side of this picture is autism—an empathy disorder that keeps us from connecting with others—which is four times more common in males than females.

The empathic bonobos regularly put themselves into someone else's shoes. At the Georgia State University Language Research Center in Atlanta, a bonobo called Kanzi has been trained to communicate with people. He has become a bonobo celebrity, known for his fabulous understanding of spoken English. Realizing that some of his fellow apes do not have the same training, Kanzi occasionally adopts the role of teacher. He once sat next to Tamuli, a younger sister who has had minimal exposure to human speech, while a researcher tried to get Tamuli to respond to simple verbal requests; the untrained bonobo didn't respond. As the researcher addressed Tamuli, it was Kanzi who began to act out the meanings. When Tamuli was asked to groom Kanzi, he took her hand and placed it under his chin, squeezing it between his chin and chest. In this position, Kanzi stared into Tamuli's eyes with what people interpreted as a questioning gaze. When Kanzi repeated the action, the young female rested her fingers on his chest as if wondering what to do.

Kanzi understands perfectly well whether commands are intended for him or for others. He was not carrying out a command intended for Tamuli—he actually tried to make her understand. Kanzi's sensitivity to his sister's lack of knowledge, and his kindness in teaching her, suggest a level of empathy found, as far as we know, only in humans and apes.

#### WHAT'S IN A NAME?

In 1978, I first saw bonobos up close at a Dutch zoo. The label on the cage identified them as “pygmy chimpanzees,” implying they were just a smaller version of their better-known cousins. But nothing could be further from the truth.

A bonobo is physically as different from a chimpanzee as a Concorde is from a Boeing 747. Even chimps would have to admit that the bonobo has more style. A bonobo's body is graceful and elegant with piano-player hands and a relatively small head. The bonobo has a flatter, more open face with a higher forehead than the chimpanzee. A bonobo's face is black, its lips are pink, its ears small, and its nostrils wide. Females have breasts; they are not as prominent as in our species, but definitely A-cup compared to the flat-chested other apes. Topping it all off is the bonobo's trademark hairstyle: long black hair neatly parted in the middle.

The biggest difference between the two apes is body proportion. Chimps have large heads, thick necks, and broad shoulders—they look as if they work out in the gym every day. Bonobos have a more intellectual appearance, with slim upper bodies, narrow shoulders, and thin necks. A lot of their weight is in their legs, which are longer than a chimp's. The result is that when knuckle-walking on all fours, the chimp's back slopes down from powerful shoulders, whereas the bonobo's remains fairly

horizontal because of its elevated hips. When standing or walking upright, a bonobo seems to straighten its back better than a chimp, giving the bonobo an eerily humanlike posture. For this reason bonobos have been compared to “Lucy,” our *Australopithecus* ancestor.

The bonobo is one of the last large mammals to be discovered by science. The discovery took place in 1929, not in a lush African habitat, but in a colonial Belgian museum following the inspection of a small skull thought to have belonged to a juvenile chimp. In immature animals, however, the sutures between skull bones ought to be separated. In this skull, they were fused. Concluding that it must have belonged to an adult chimp with an unusually small head, Ernst Schwarz, a German anatomist, declared that he had stumbled upon a new subspecies. Soon the anatomical differences were considered important enough to elevate the bonobo to the status of an entirely new species: *Pan paniscus*.

A biologist who had been a student with Schwarz in Berlin told me how Schwarz’s peers used to make fun of him. Schwarz not only claimed there were two chimp species, but also that there were three elephant species. Everyone knew that there was only one of the first and two of the second. The standard line about *der Schwarz* was that he knew “everything and more.” As it turns out, Schwarz was right. The African forest elephant was recently confirmed as a separate species, and Schwarz is known as the official discoverer of the bonobo—the sort of honor scientists are willing to die for.

The bonobo’s genus name, *Pan*, derives appropriately enough from the Greek forest god with a human torso and the legs, ears, and horns of a goat. Playfully lecherous, Pan loves to frolic with nymphs while playing the shepherd’s (or pan) flute. The chimpanzee belongs to the same genus. The bonobo’s species name, *paniscus*, means “diminutive,” whereas the chimp’s species name, *troglodytes*, means “cave dweller.” With the bonobo being called a small goat deity and the chimp a grotto goat deity, these are curious epithets indeed.

The name “bonobo” probably derives from a misspelling on a shipping crate from “Bolobo,” a town on the Congo River (although I have also heard that “bonobo” means “ancestor” in an extinct Bantu language). In any case, the name has a happy ring to it that befits the animal’s nature. Primatologists jokingly employ it as a verb, as in “We’re gonna bonobo tonight,” the meaning of which will soon become clear. The French refer to bonobos as “Left Bank chimpanzees”—a name that summons up images of an alternative lifestyle—since they live on the south bank of the westward streaming Congo River. This mighty river, which in places is ten miles wide, permanently separates bonobos from the chimpanzee and gorilla populations to the north. Despite the bonobo’s previous name, “pygmy chimpanzee,” they are not much smaller than chimpanzees. The average adult male bonobo weighs ninety-five pounds and the average female eighty pounds.

What struck me most while watching my first bonobos was how sensitive they seemed. I also discovered some habits that shocked me. I witnessed a minor squabble over a cardboard box, in which a male and female ran around and pummeled each other until all of a sudden the fight was over and they were making love! I had been studying chimps, which never switch so easily from fighting to sex. I thought this bonobo behavior was an anomaly or that I had missed something that could explain the sudden change of heart. But it turned out that what I had seen was perfectly normal for these Kama Sutra primates.

I learned this much later, after I had begun working with bonobos at the San Diego Zoo. Information on wild bonobos had been trickling in over the years from Africa, which added to our



- [download online Governor Ramage R. N. \(The Lord Ramage Novels, Volume 4\) book](#)
- [download The Ex Games](#)
- [click \*Building Better Business Teams: Proven Strategies that Get the Best from Your People \(Collection\)\* book](#)
- [read online Machine Learning in Medicine: Part Three](#)
- [read Science Unshackled: How Obscure, Abstract, Seemingly Useless Scientific Research Turned Out to Be the Basis for Modern Life](#)
- [Cowboys Full: The Story of Poker pdf](#)
  
- <http://diy-chirol.com/lib/Logic-and-Automata--History-and-Perspectives--Amsterdam-University-Press---Texts-in-Logic-and-Games-.pdf>
- <http://deltaphenomics.nl/?library/The-Ex-Games.pdf>
- <http://metromekanik.com/ebooks/The-Grand-Banks-Caf----Inspector-Maigret--Book-8-.pdf>
- <http://fitnessfatale.com/freebooks/Machine-Learning-in-Medicine--Part-Three.pdf>
- <http://www.satilik-kopek.com/library/OSCEs-for-Medical-and-Surgical-Finals--Hodder-Arnold-Publication-.pdf>
- <http://creativebeard.ru/freebooks/Cowboys-Full--The-Story-of-Poker.pdf>